

**APPARATUS, SYSTEM AND METHOD FOR ALLOCATING UPSTREAM
AND DOWNSTREAM CHANNELS IN A CELLULAR COMMUNICATION
SYSTEM HAVING A WIRELESS BACKHAUL**

ABSTRACT OF THE INVENTION

Downstream link signals are transmitted between a base station and a distribution station within an upstream frequency bandwidth allocated to the cellular system for upstream communication for mobile stations. Upstream link signals are transmitted between the distribution station and the base station within a downstream frequency bandwidth allocated to the cellular system for upstream communication for mobile stations. The distribution station frequency shifts the downstream link signals from the upstream frequency bandwidth to a downstream coverage frequency within the downstream frequency bandwidth and frequency shifts upstream coverage signals from the upstream frequency bandwidth to an upstream link frequency within the downstream frequency bandwidth. Interception and interference of link signals is reduced since the mobile stations do not receive signals within the upstream frequency bandwidth or transmit signals within the downstream frequency bandwidth.